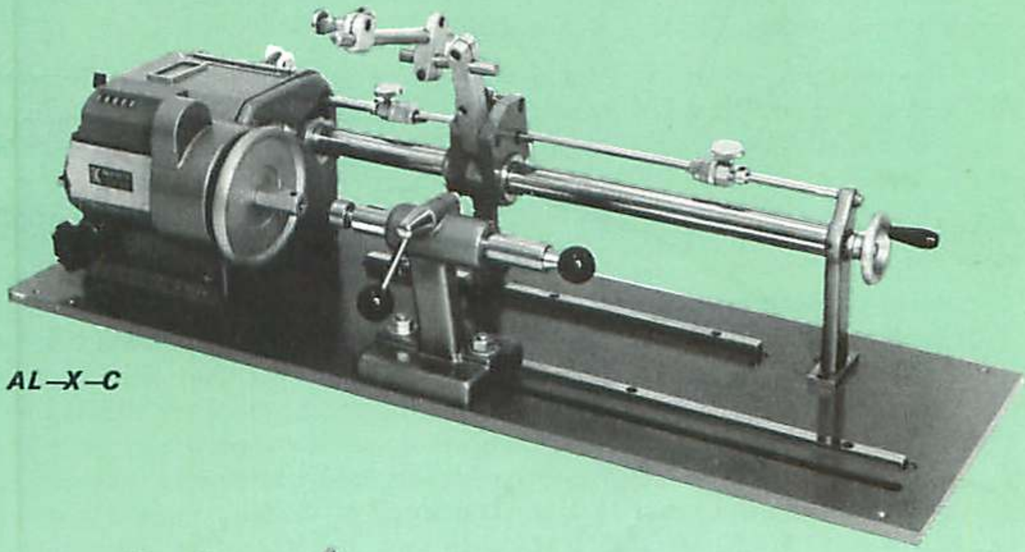
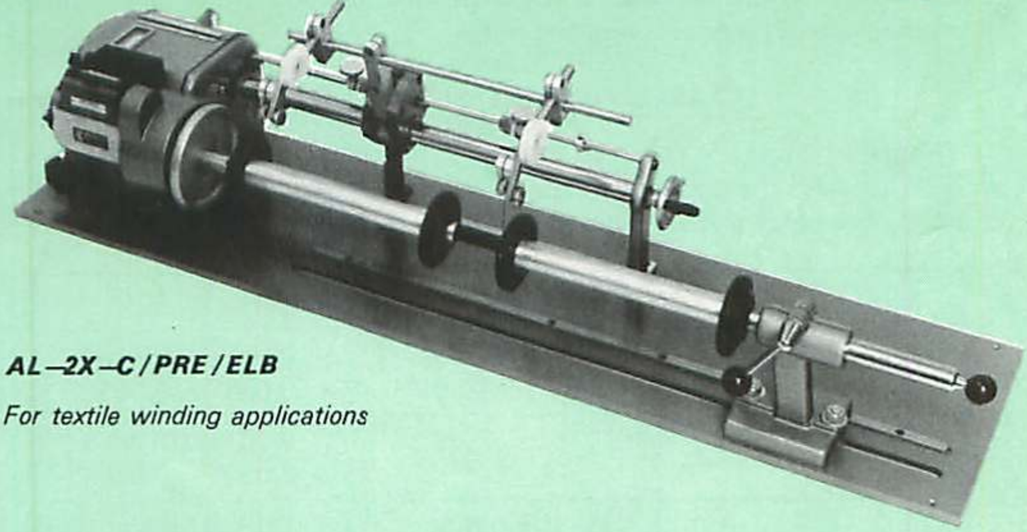
COIL WINDING MACHINE AL



AL–X–C



AL–2X–C/PRE/ELB

For textile winding applications

Type AL derived from A Series machines enable larger diameter coils of the same class to be wound. A slave winding spindle is driven at selected ratios from the headstock enabling heavy wires to be wound at low speeds. The traverse carriage is strengthened as is the movable tailstock and the machine mounts on a cast aluminium baseplate with motor mounting supports. A truly versatile unit at moderate cost.

Maximum coil diameter:	260 mm
Maximum coil length:	380 mm
Wire sizes:	5.80–0.03, 3.2–0.02, 1.6–0.01 mm (4–48, 10–51, 16–52 SWG)
Winding speeds:	Dependent on ratio selected from 100–6000 rpm

KOLECTRIC LIMITED

BRENT ROAD · SOUTHALL · MIDDLESEX · ENGLAND UB2 5NH · Tel.: 01-574 6002/3. Cables: Winders Southall Telex: 935459

MODEL AL MACHINE SPECIFICATION

Model AL machine series is based to a large extent on the well-proven A series design developed since 1947 by Kolectric Ltd. The traverse reversing unit and the wire pitch selector remain the same whilst the traversing mechanism and tailstock have been strengthened for the heavier wire sizes within the machine's winding capability.

An extension casting carrying a new heavy duty winding spindle is attached to the existing headstock and the whole machine is mounted on a sturdy aluminium baseplate. The wire guide pulleys are suitable for a wide range of round wires and special pulleys can be made to order for square or rectangular cross section wires.

The tailstock, which has a spring-loaded cone on a sliding spindle, is movable along the baseplate and can be locked in a suitable position. Adjustable trip rod stops quickly set the traverse length required and a handwheel adjusts the infinitely variable wire pitch selector.

WIRE SIZES OBTAINED FROM THE VARIOUS LEADSCREWS AND PULLEY RATIOS AVAILABLE

When the headstock spindle of Model AL-1 is driven at a 1:1 ratio from a 1425 r.p.m. motor, this spindle will run at 1425 r.p.m. Assuming that the machine has been supplied with a 3:1 ratio fitted between headstock and winding spindle (Model AL-1C) then, with the large pulley on the winding spindle and the small pulley fitted to the headstock, the speed of winding will be one third motor speed, i.e. 475 r.p.m. The wire size coverage will correspondingly be three times as great i.e. 1,5 – 0,075 mm (0.060" – 0.003"). Reversing the pulleys, achieved in a few minutes without the need of skilled labour, will result in a winding speed of 4275 r.p.m. and a wire size coverage of 0,17 – 0.016 mm (0.007"– 0.0003"). It can be seen, therefore, that any selected ratio will have an effect on the winding speed and wire size range.

TABLE OF WIRE SIZES/RATIO FITTED TO MACHINE

This table shows the machine code and the suffix (A, B or C) to be added to this code when ordering. Also the wire sizes obtained when using these ratios with pulleys in both possible positions on the headstock and winding spindles.

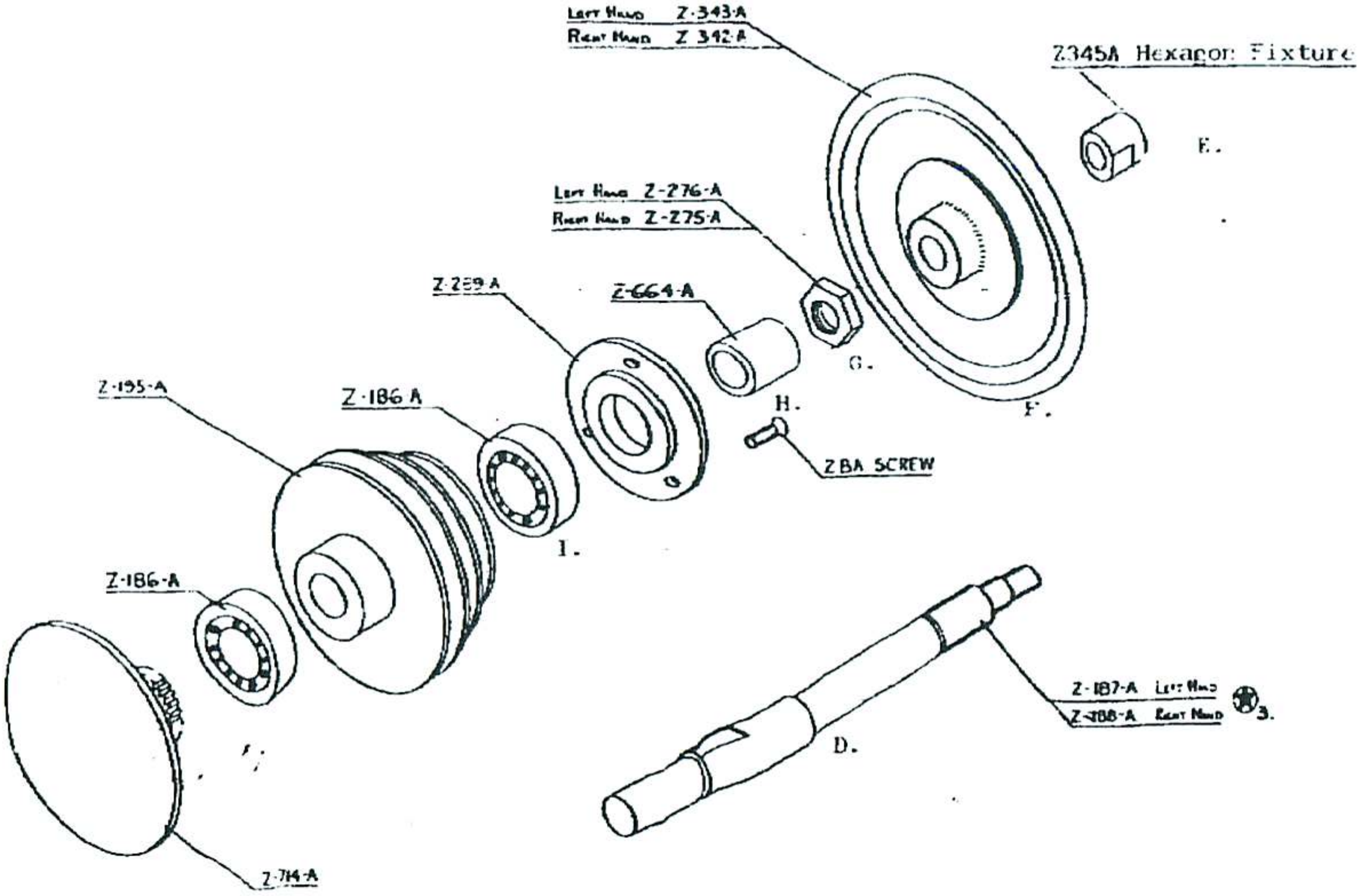
Machine Type	Suffix A 1:1	Suffix B 2:1*	Suffix C 3:1
AL-1 10 TPI leadscrew	0,5 – 0,025mm 0.020" – 0.001"	0,9 – 0,045mm 0.036" – 0.0018"	1,5 – 0,075mm 0.060" – 0.003"
		0,28 – 0,016mm 0.012" – 0.0006"	0,17 – 0,009mm 0.007" – 0.0003"
AL-X 5 TPI leadscrew	1 – 0,05mm 0.040" – 0.002"	1,8 – 0,09mm 0.072" – 0.0036"	3 – 0,15mm 0.120" – 0.006"
		0,56 – 0,03mm 0.022" -- 0.0011"	0,34 – 0,025mm 0.013" – 0.0007"
AL-2X 5 TPI double-start leadscrew	2 – 0,1mm 0.080" – 0.004"	3,6 – 0,18mm 0.144" – 0.0072"	6 – 0,3mm 0.240" – 0.012"
		1,12 – 0,055mm 0.044" –0.0022"	0,7 – 0,035mm 0.027" – 0.0013"

* Note that this exact ratio is 1.8:1

Please note also that AL series machines, whilst having the capability, are not recommended for winding wires heavier than 3,65 mm (0.144", 9 SWG) nor finer than 0,025 mm (0.001", 50 SWG).

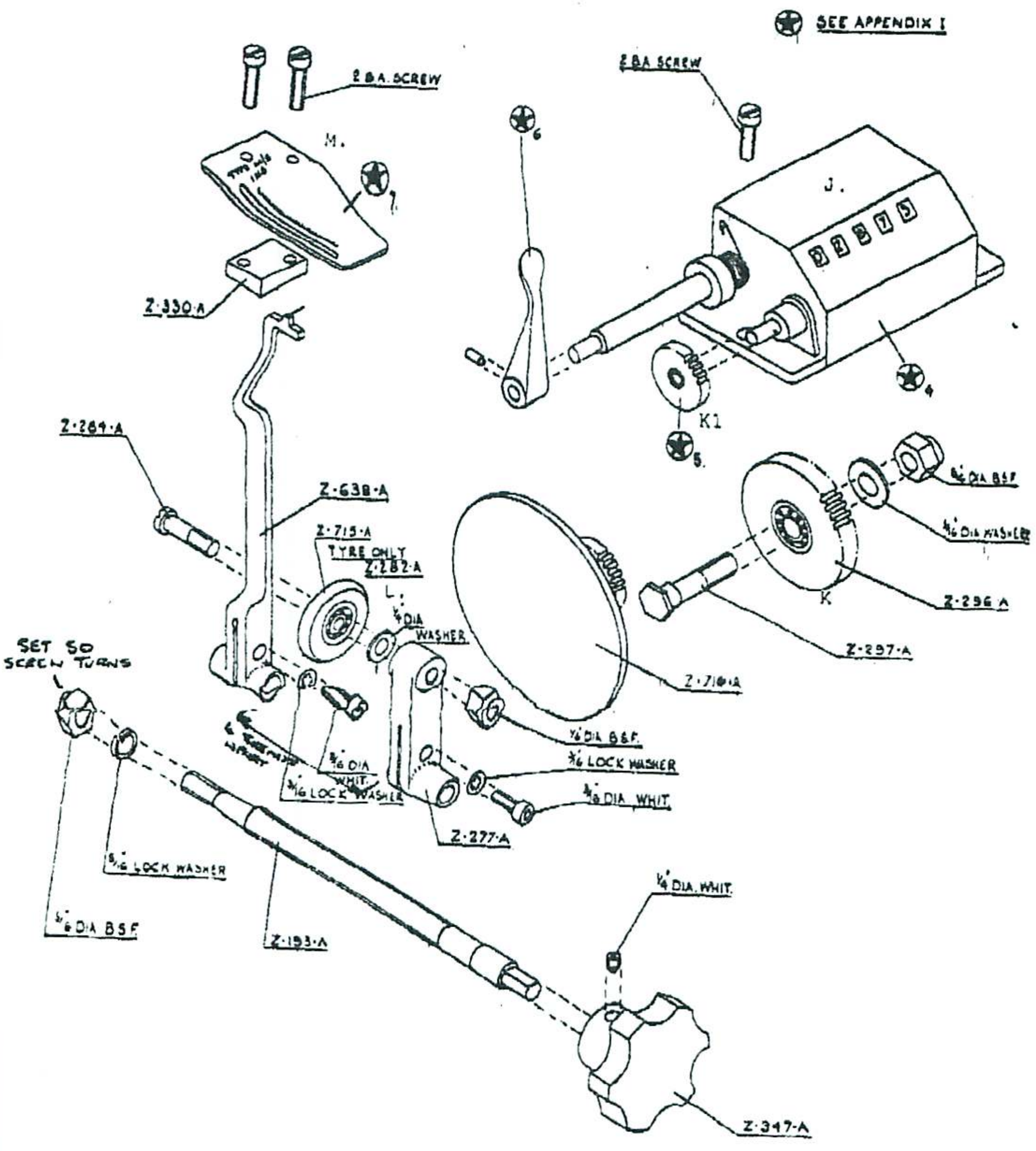
Unless otherwise requested at time of ordering a 3:1 ratio (C) will be fitted.

✱ SEE APPENDIX I



MAIN SPINDLE & DRIVE PULLEY ASSEMBLY

FIGURE No 2



COUNTER & VARIABLE W. G. DRIVE ASSEMBLY.

FIGURE No. 3.

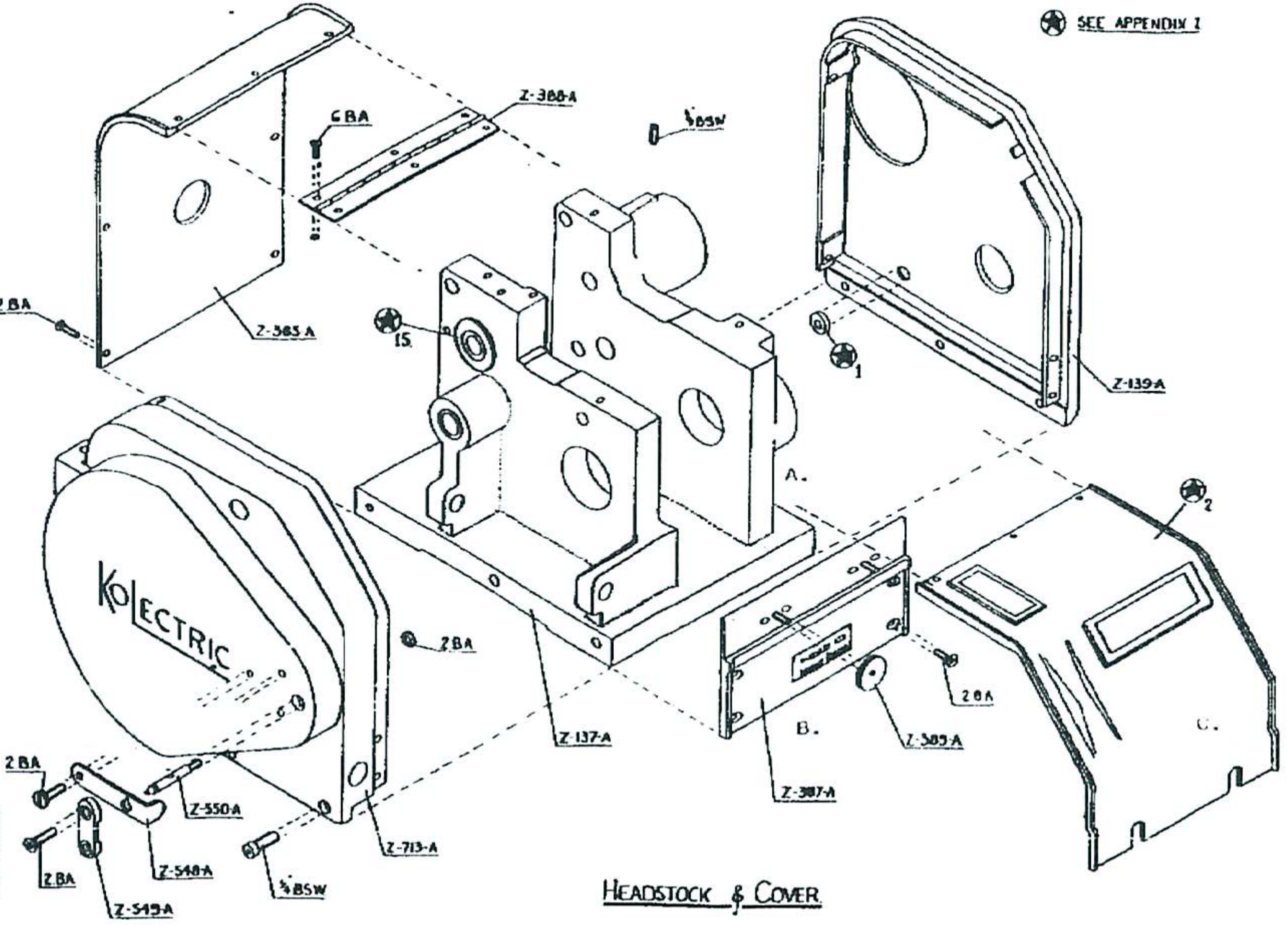


FIGURE No.1

HEADSTOCK & COVER

KOLECTRIC LIMITED
Coil Winding Machines
Instruments

BRENT ROAD · SOUTHALL · MIDDLESEX · ENGLAND UB2 5NH · Tel.: 01-574 6002. Cables: Winders Southall. Telex: 935459

ADDITIONAL INFORMATION ON PNEUMATIC CLUTCH OPERATION - AL MACHINES

Having connected an air supply to the inlet position on the Filter/Lubricator/Regulator pack fitted to the rear of the tubular stand, open the on/off tap to allow air to pass.

Adjust regulator to show approximately 40 psi on the gauge. This is the minimum for correct operation.

Set the machine counter, or counter on length measuring device if fitted, to a test number - say 100. Refer to Trumeter instructions on how to do this.

Assuming the mains is connected operate contactor 1. This starts the motor running. After a few seconds press contactor 2. This starts the winding sequence.

The "run" flow regulator will have been factory set to allow the clutch to be engaged slowly. The machine will gradually start up and attain full running speed.

On reaching the preset number on the counter the cylinder will reverse operation and the "stop" flow regulator will commence applying the brake.

Adjustment of either "run" or "stop" regulator should be done with care and in very small increments either way so as not to lose the "feel" of the operation.

Be sure not to set the counter to 99999.

If you operate the remote emergency stop button or the stop button on contactor 1 the power to the whole circuit will be removed and the motor will be disconnected. However, the flywheel of the motor will continue to run. Do not manually operate the clutch until the flywheel has stopped. Allow 10 seconds before restarting the motor. Do not start and stop the motor regularly - it will burn out!!!

Using the stop button on contactor 2 will stop the winding process only - the mains will still be connected to the motor.

MODEL AL MACHINE SPECIFICATION

Model AL machine series is based to a large extent on the well-proven A series design developed since 1947 by Kolectric Ltd. The traverse reversing unit and the wire pitch selector remain the same whilst the traversing mechanism and tailstock have been strengthened for the heavier wire sizes within the machine's winding capability.

An extension casting carrying a new heavy duty winding spindle is attached to the existing headstock and the whole machine is mounted on a sturdy aluminium baseplate. The wire guide pulleys are suitable for a wide range of round wires and special pulleys can be made to order for square or rectangular cross section wires.

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Please note also that AL series machines, whilst having the capability, are not recommended for winding wires heavier than 3,65 mm (0.144", 9 SWG) nor finer than 0,025 mm (0.001", 50 SWG).

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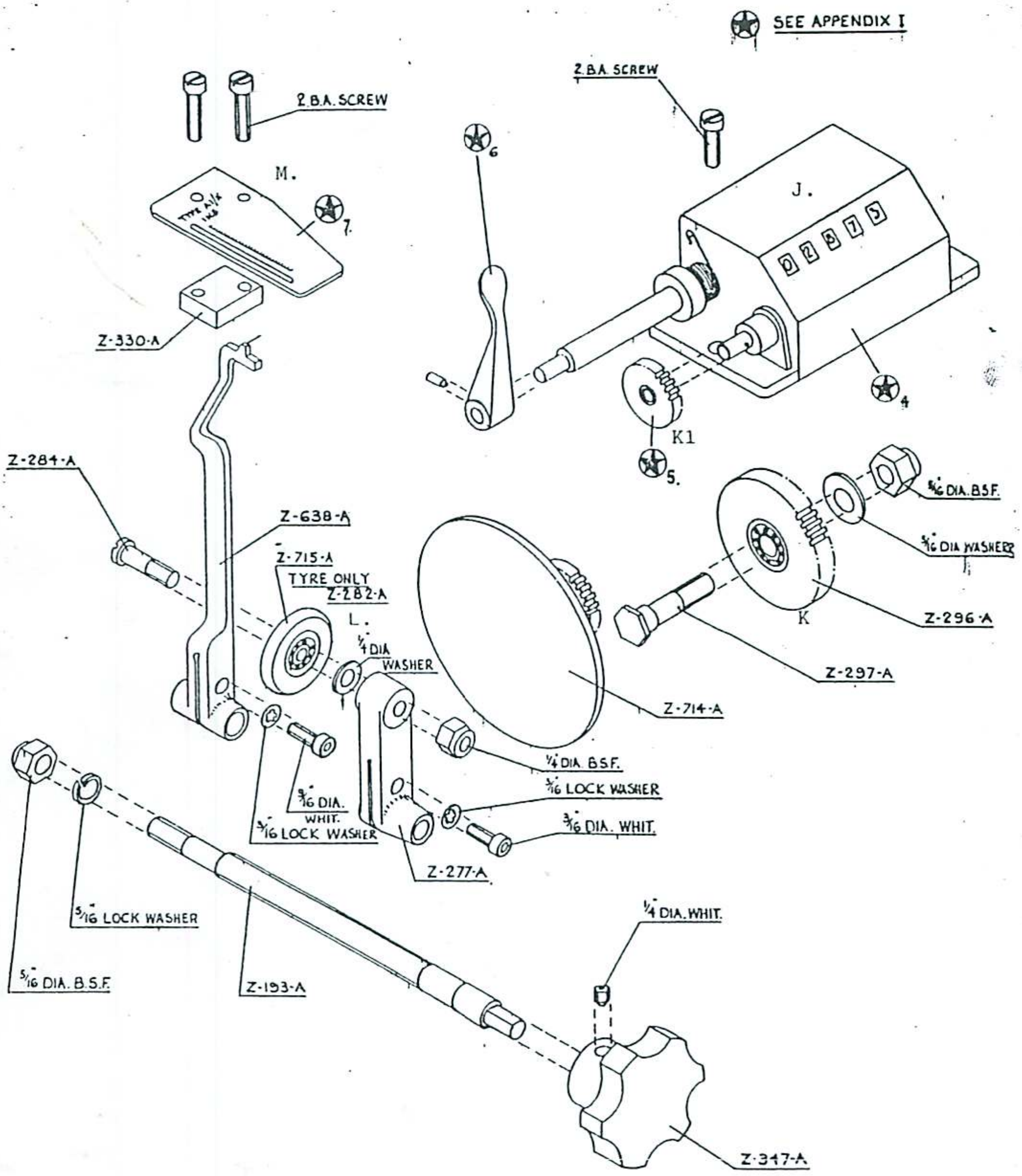
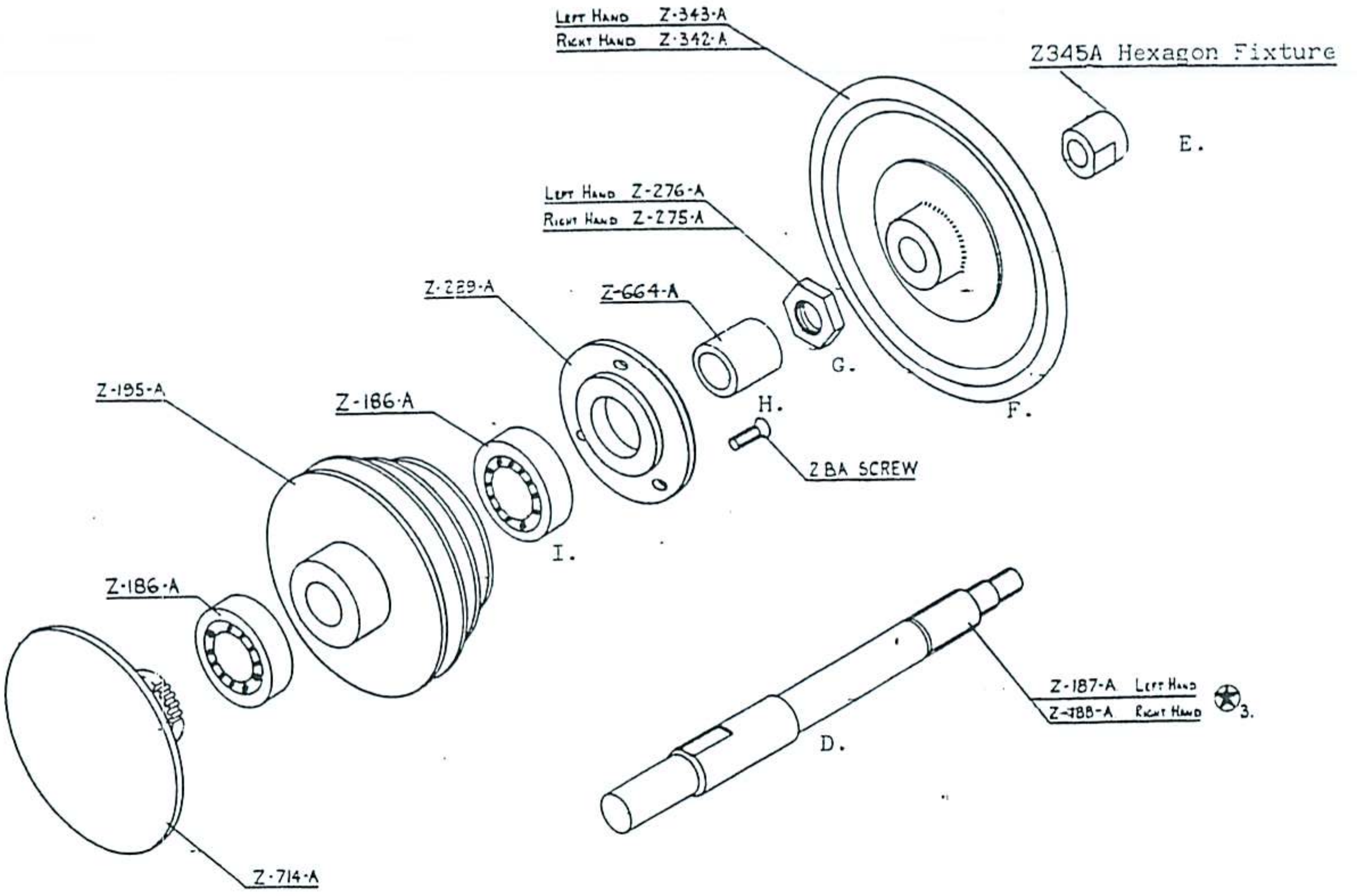


COUNTER & VARIABLE W. G. DRIVE ASSEMBLY.

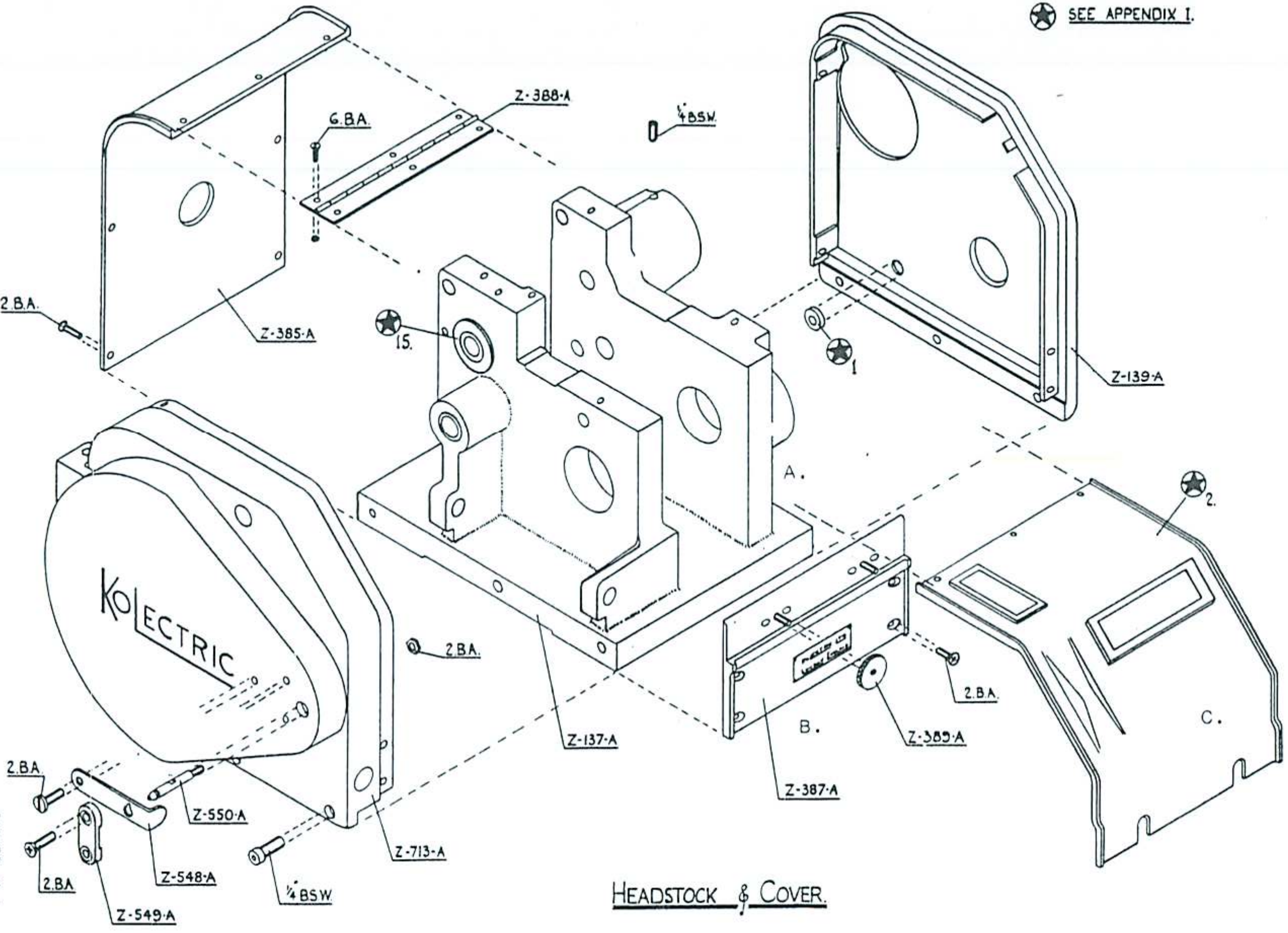
FIGURE No. 3.

✪ SEE APPENDIX I.



MAIN SPINDLE & DRIVE PULLEY ASSEMBLY.

FIGURE No 2



HEADSTOCK & COVER.

FIGURE No. 1.

SPECIAL AL ADDITIONS REF A – U ON MANUAL DRAWINGS

A. Z137A headstock is specially machined to take
   - Z951A front block which contains
   - Z952A winding spindle
   - Z793A/Z794A Hengstler counter
   - Z954A on Z955A or Z956A idler plate
   - 2 off Z957A circlip
   - Z958A spacer
   - Z961A ball race coverplate
   - Z755A LS7 ball races (2)

B. Z387A is replaced by Z960A coverplate

C. Z386A is replaced by Z962A top cover

D. Z188A is replaced by Z959A modified headstock spindle. This carries usually 10L050 gear held on by circlip to drive 30L050 gear on main spindle Z952A

E. Deleted – replaced by Hexagon fixture Z345A on new main spindle

F. Now fitted on Z952A spindle and held on by:-

G. Locknut Z275A

H. Spacer cut down to suit is now Z958A

I. Z755A standard bearing is replaced with sealed version

J. Counter in Hengstler series 159 top coming (but modified as required by Z955A or Z956A idler plate)

K. Deleted and replaced by Z953A winding spindle counter gear

K1. Counter drive gear with boss to suit Hengstler spindle diameter

L. Type 55 friction drive fitted to AL series machine

M. Scale modified as detailed in paragraph 9.3

N. Long bed Z722A is standard on AL machines

O. Tubular bed support Z966A replaces standard item

P. Z716A replaced by Z731A with quick release gear arrangement and not Z964A as normal on AL machines. The guide rail Z965A is used

Q. Modified Z410A for AL machines fitted with Z731A assembly

R. Deleted when Z731A is used.

S. Z266A long trip rod is Z972A

T. Complete AL tailstock is Z972A.

U. Tailstock spindle for AL machine is Z623B

The AL machine sits on baseplate Z950A

10.0 Appendix to Manual and A and AL Operating Instructions

The Kolectric A, AL and B series winding machines have been produced in a large number of variations since their conception and although basically unchanged there have been modifications in the case of materials or design of components.

This appendix attempts to cover most widely used variations but it will be helpful, when referring questions to Kolectric or ordering spare parts, if the serial number of the machine can be quoted. This number is found on the headstock casting (Z.137A figure 1) on the front face which shows below Z.387A Front Cover. The number is usually expressed as a 5 figure number such as 71018 or may have an oblique stroke or hyphen such as 601/35, 57-219. This number enables our records to be checked to ascertain whether correct spares are being supplied against a customer's order.

Figure 1.

*1 Rubber grommet and hole. This is found only in A and AL series machines having a subtractive predetermined counter and with suffix PRE in the machine type code.

*2 Top cover. For A series additive counter only (Z.386A).
For A series subtractive predetermining counter (Z.386B).
For AL series additive or subtractive (Z.962A).

*15 Clamping Bush - ground finish.
Z.387A replaced with Z.963A on AL machines.
Z.137A headstock has Z.951A AL front block attached with dowelsand 1/4W x 1" CAP SCREWS on AL series machines.

Figure 2.

*3 Z.187A replaced with Z.952A on AL series machines (Z.971A TOP GOING)
Z.187B for B series machines fitted with electromagnetic brake.
Z.346A replaced on all machines with Z.727A or Z.726A L.H. TOP GOING.
Z.195A removed on B series machines with electromagnetic brake.

Figure 3.

*4 ENM counters replaced by Trumeter counter circa 1969.
Full list of counters appears later in appendix.
*5 All Trumeter counters use same gear and bush (Z.295A and Z.370A) request Z.371A if for ENM type counter.
*6 State counter make when ordering this item (Z.640A).
*7 State whether 10,5 or 5 TPI double start leadscrew fitted to machine when ordering this item (Z.326A, Z327A respectively)

Z.282A replaced on B series machines with new type material friction drive Z.885A. Available for use with A and AL series machines if required.
Z.347A wire gauge adjusting knob can be replaced by Z.727A extended shaft crank handle for fast wire gauge adjustment.

Figure 4.

*8 These two items available only as complete spare unit.

*9 Assembly Z.163A. This excludes Z.322A centralizing handle and Z.541A compression spring.

Changeover gears, complete assembly Z.466A is replaced on B series machines with Z.1000A. B series machines do not use Z.163A assembly of Z.161A and associated items.

Figure 5.

*10 Complete list of leadscrew available detailed later in appendix. Note that tubular bed is modified by length of leadscrew.

*11 Now available only with single hole mounting for *13 figure 6, when ordering spares for machines with double recess mounting, *13 must also be requested.

*12 Z.264A shown modifies to Z.728A on long tubular bed and AL machines and to Z.729A on B series and A series fitted with quick traverse return feature.

Figure 6.

*13 Traverse nut key Z.490B available only with single central boss for one hole mounting in *11 traverse nut. Thus when ordering keys it may be desirable to order traverse nuts to suit leadscrew (see later note).

Z.716A replaced with Z.730A on B series machines and Z.731A on A series machines fitted with quick traverse release mechanism. Z.964A is for AL series machines and has different wire feed arrangement and height adjustment (Z.970A).

Figure 7.

Trip Rod length modified by leadscrew selected.

Z.177A and Z.179A not used on B series machines.

Figure 8.

*14 Mark 1 Tailstock spares and overhaul service available but complete tailstocks only available as Mark II (Z.724A).

AL series machines: complete tailstock assembly is Z.972A.

Counters A, AL and B Series Machines

Z.785A	Trumeter	RH	Additive	A	Series
Z.786A	"	LH	"	A	"
Z.787A	"	RH	"	AL	"
Z.788A	"	LH	"	AL	"
Z.789A	"	RH	Predetermined	A	"
Z.790A	"	LH	"	A	"
Z.791A	"	RH	"	AL	"
Z.792A	"	LH	"	AL	"
Z.793A	Hengstler	RH	"	B	"
Z.794A	"	LH	"	B	"

Leadscrews A, AL and B Series

Z.680A	5 TPI	Double Start	RH Long
Z.681A	5 TPI	" "	RH Standard
Z.683A	5 TPI		RH Long
Z.684A	5 TPI		RH Standard
Z.686A	10 TPI		RH Long
Z.687A	10 TPI		RH Standard
Z.690A	20 TPI		RH Standard
Z.695A	5 TPI	Double Start	LH Long
Z.698A	5 TPI		LH Long
Z.699A	5 TPI		LH Standard
Z.701A	10 TPI		LH Long
Z.702A	10 TPI		LH Standard
Z.705A	20 TPI		LH Standard
Z.706A	20 TPI		LH Short

Suffix A changes to B for all B series machines

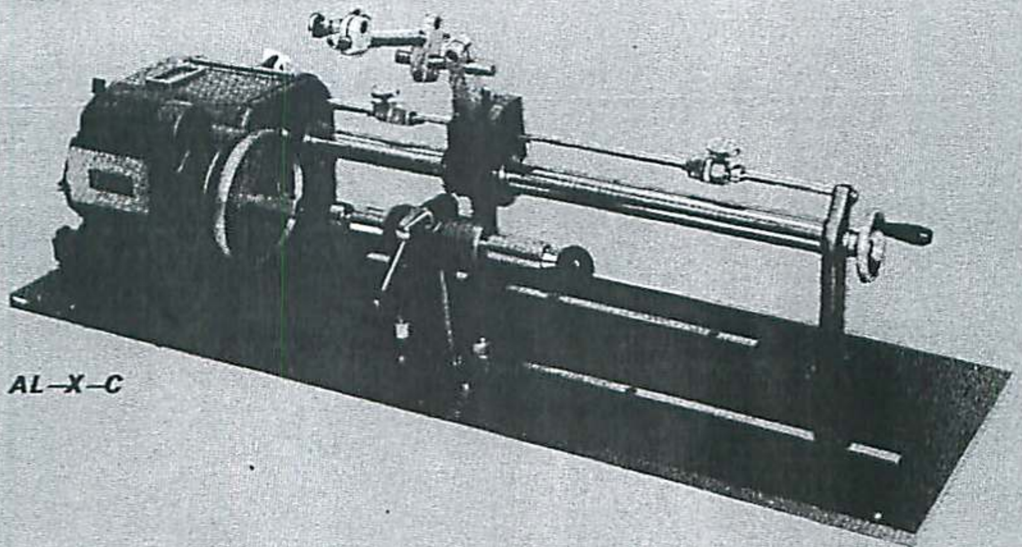
Ball Races

Z.750A	R3	Ball race for pulleys
Z.751A	EE2	Headstock bearings
Z.752A	EE3	Headstock bearings
Z.753A	EE4ZZ	B machines electromagnetic changeover
Z.755A	LS7	A and AL main bearings
Z.758A	EW3/8	Thrust race
Z.759A	EW1/2	Thrust race

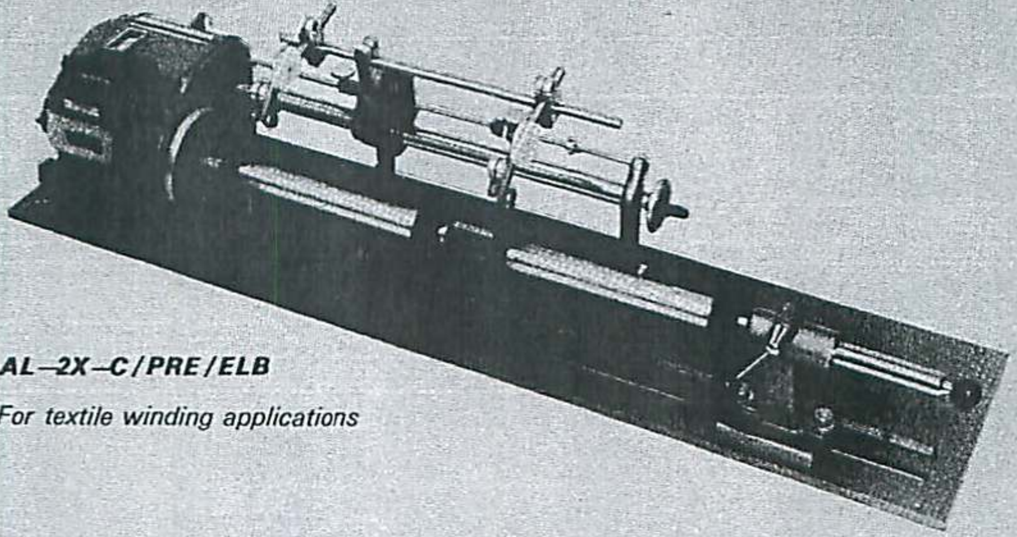
AL Machines - additional items See also Ref. A-U Items)

Z.950A	Baseplate
Z.951A	Front block
Z.952A	Winding spindle RH top coming
Z.953A	Winding spindle counter driving gear
Z.954A	Intermediate gear (nylon)
Z.955A	Intermediate gear plate (1 idler)
Z.956A	Intermediate gear plate (2 idlers)
Z.957A	Ball race and pulley retaining circlips (3)
Z.958A	Winding spindle spacer
Z.959A	Headstock modified spindle
Z.960A	Pulley cover plate
Z.961A	Ball race cover plate
Z.962A	Top hinged cover
Z.963A	Front cover
Z.964A	Traverse bracket complete
Z.965A	Traverse guide rail
Z.966A	Tubular bed support bracket (AL type)
Z.967A	Tailstock casting
Z.968A	Tailstock locking handle
Z.969A	Tailstock securing bolt and nut
Z.970A	Wire feed arrangement complete
Z.971A	Winding spindle LH top going
Z.972A	Complete tailstock assembly.

COIL WINDING MACHINE **AL**



AL–X–C



AL–2X–C/PRE/ELB

For textile winding applications

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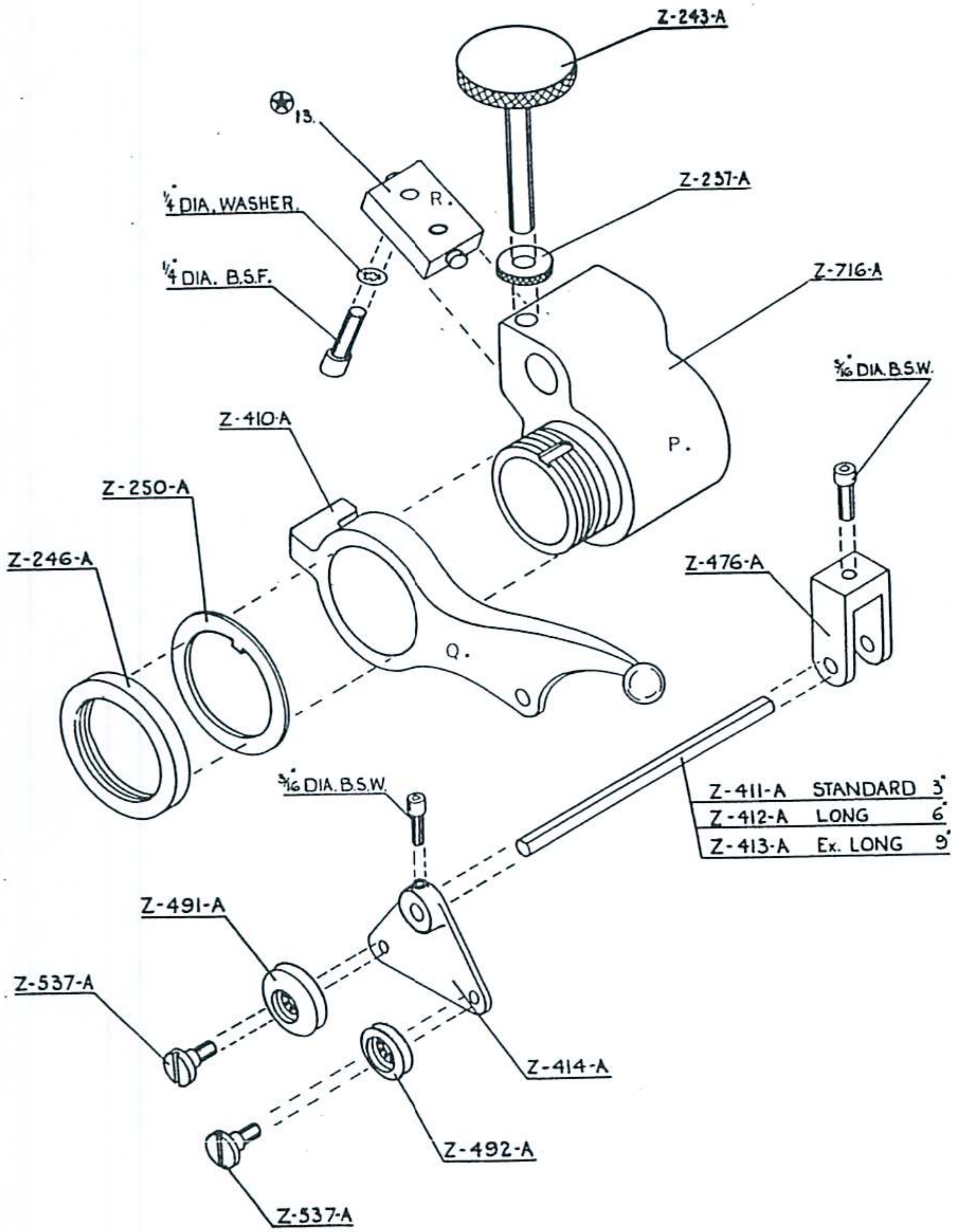
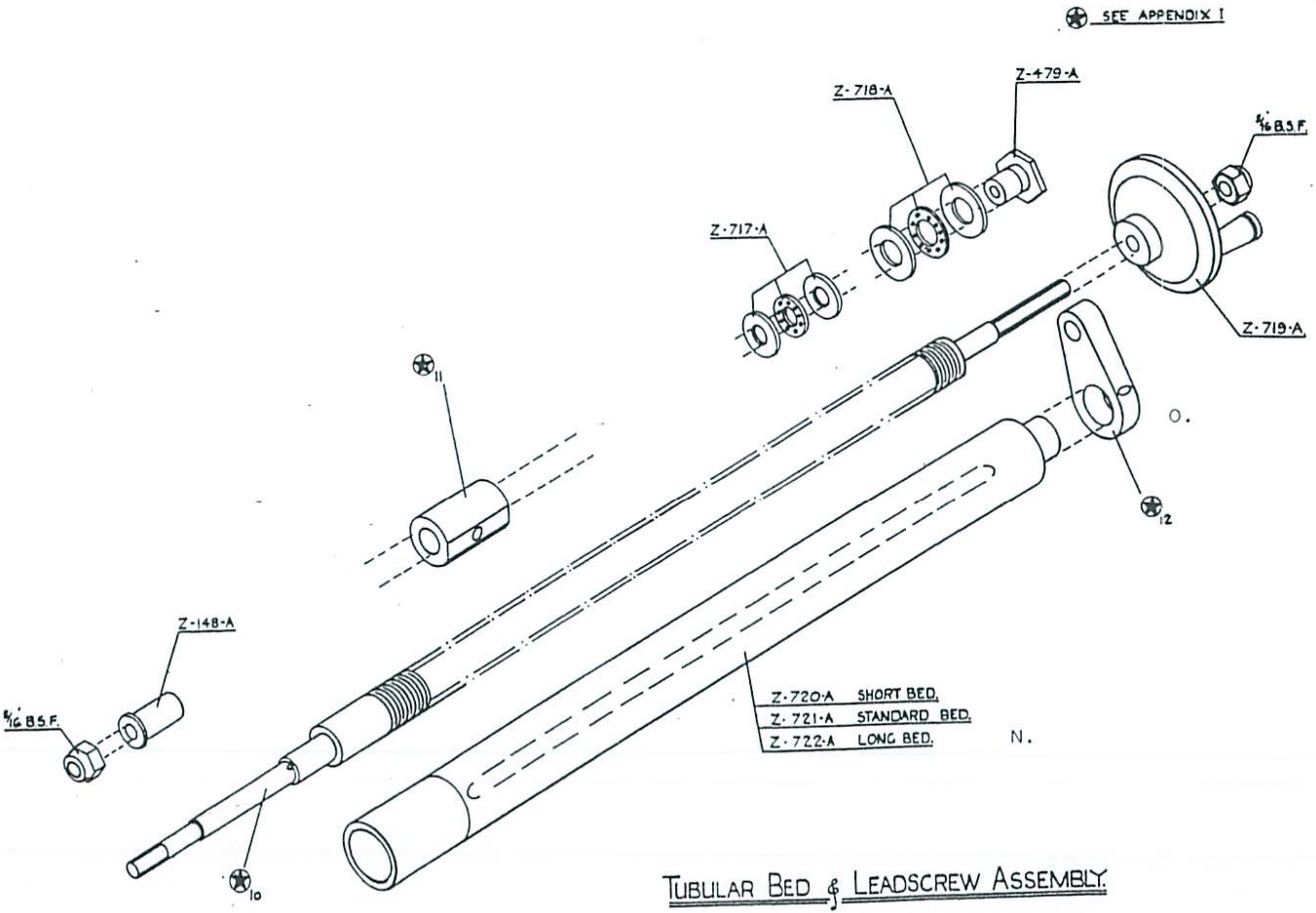
MEMBER · INTERNATIONAL COIL WINDING ASSOCIATION · I.C.W.A.

✪ SEE APPENDIX I.



TRAVERSE BRACKET & WIRE FEED ASSEMBLY.

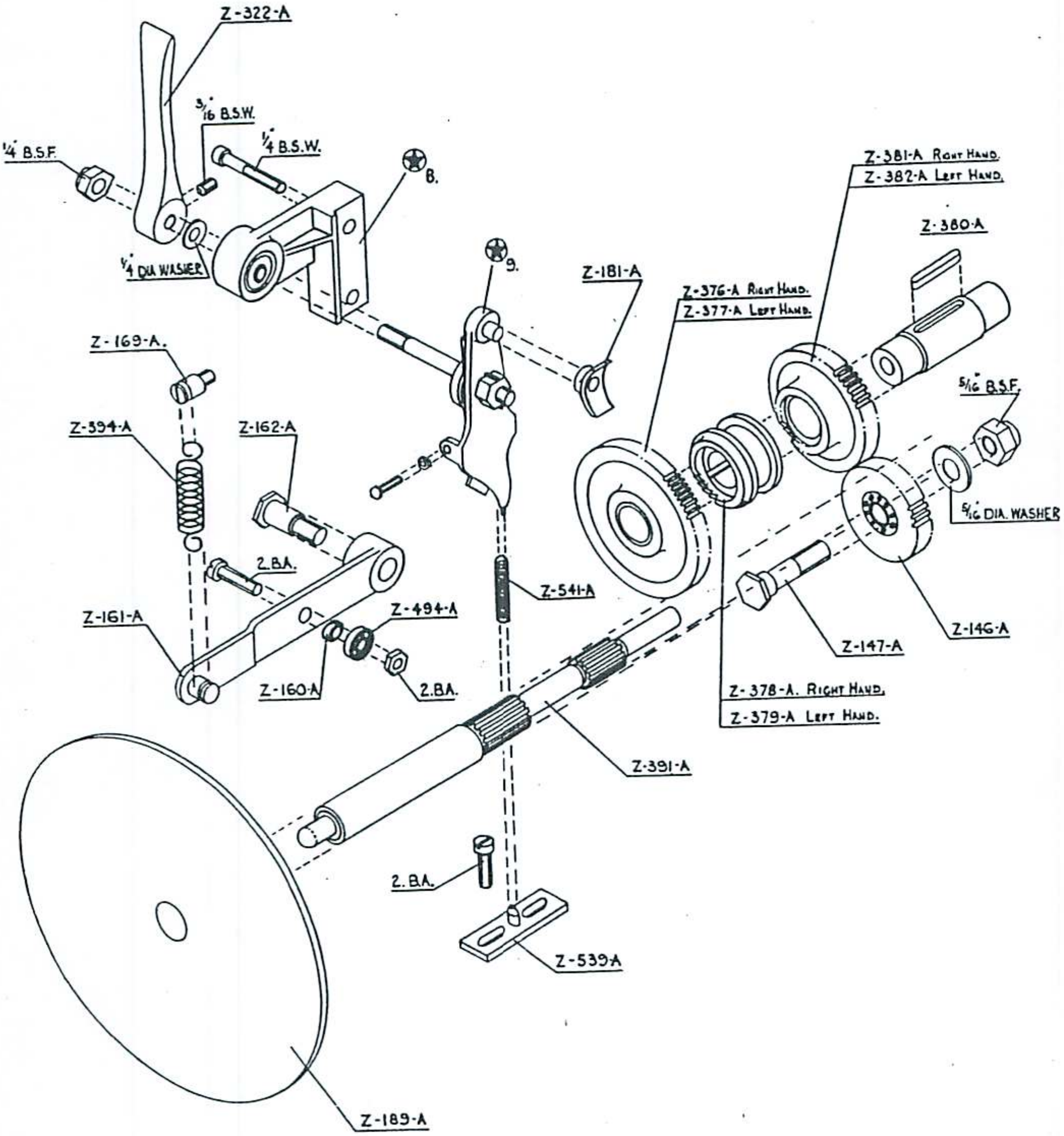
FIGURE No. 6.



TUBULAR BED & LEADSCREW ASSEMBLY.

FIGURE No.5.

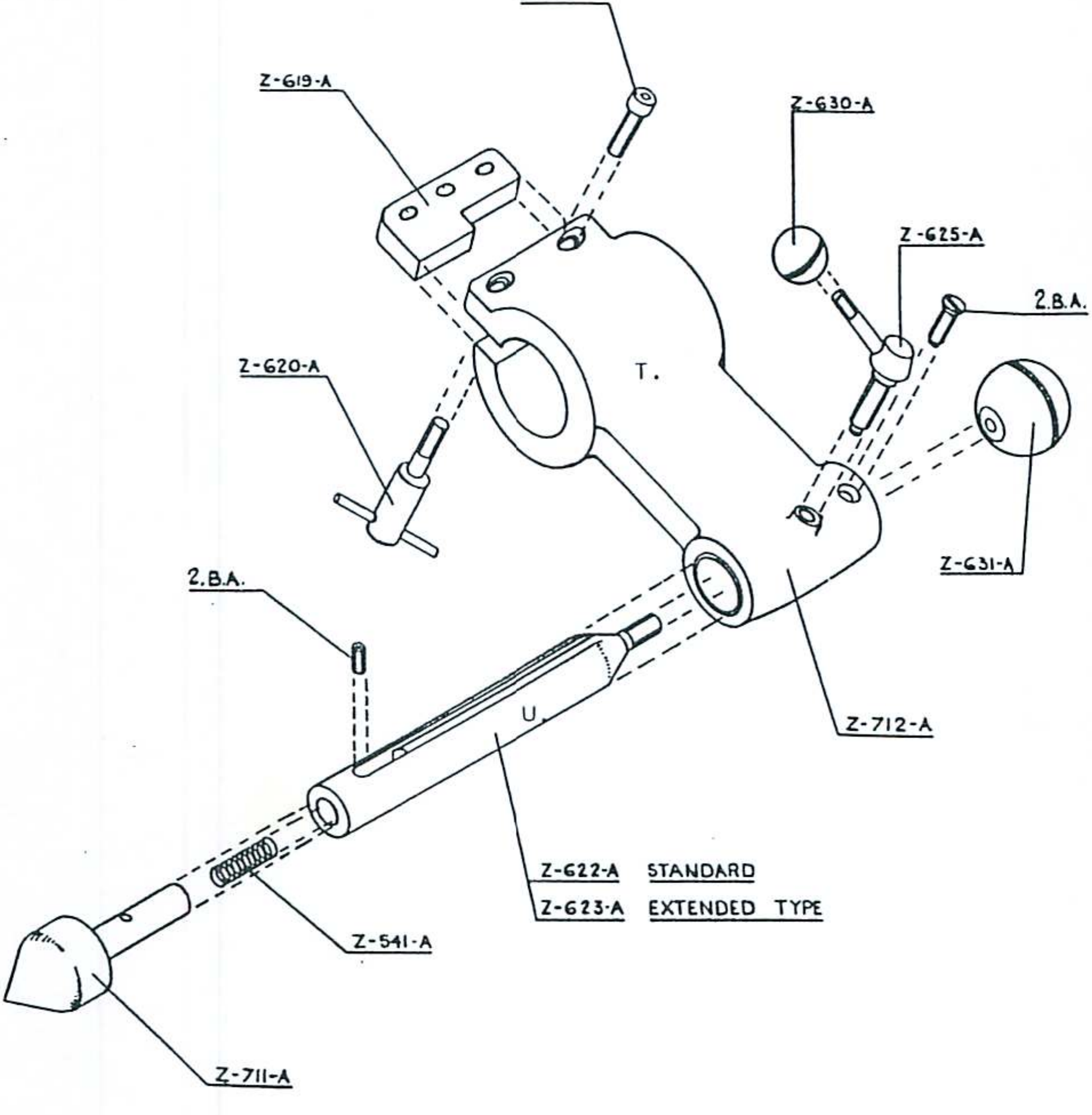
SEE APPENDIX I.



DRIVEN DISC, CHANGE-OVER GEARS & MECHANISM.

FIGURE No.4.

✪ SEE APPENDIX I

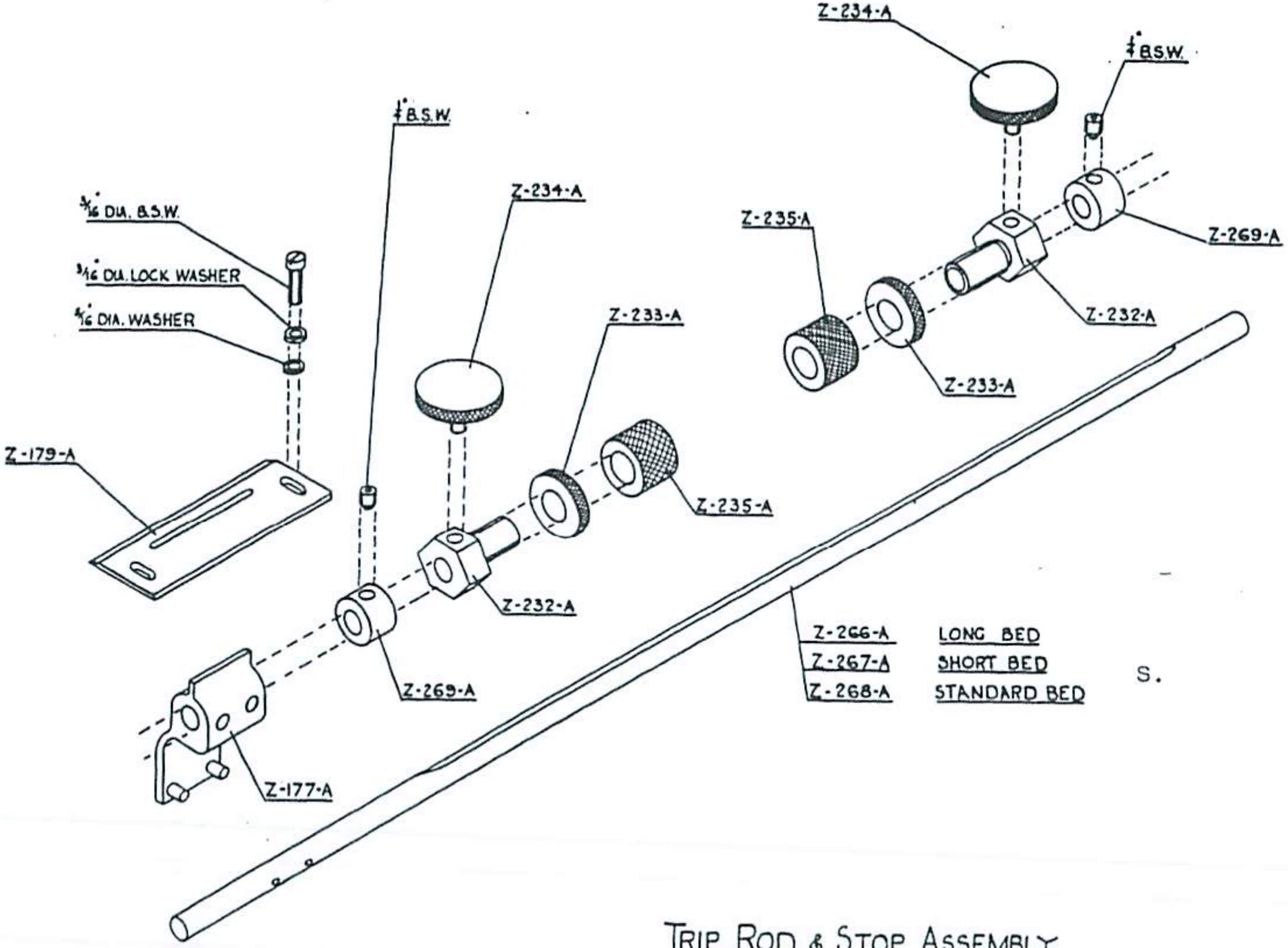


TAILSTOCK ASSEMBLY. MARK II

FOR MARK I SEE APPENDIX ✪ 14

FIGURE No. 8.

✪ SEE APPENDIX I.

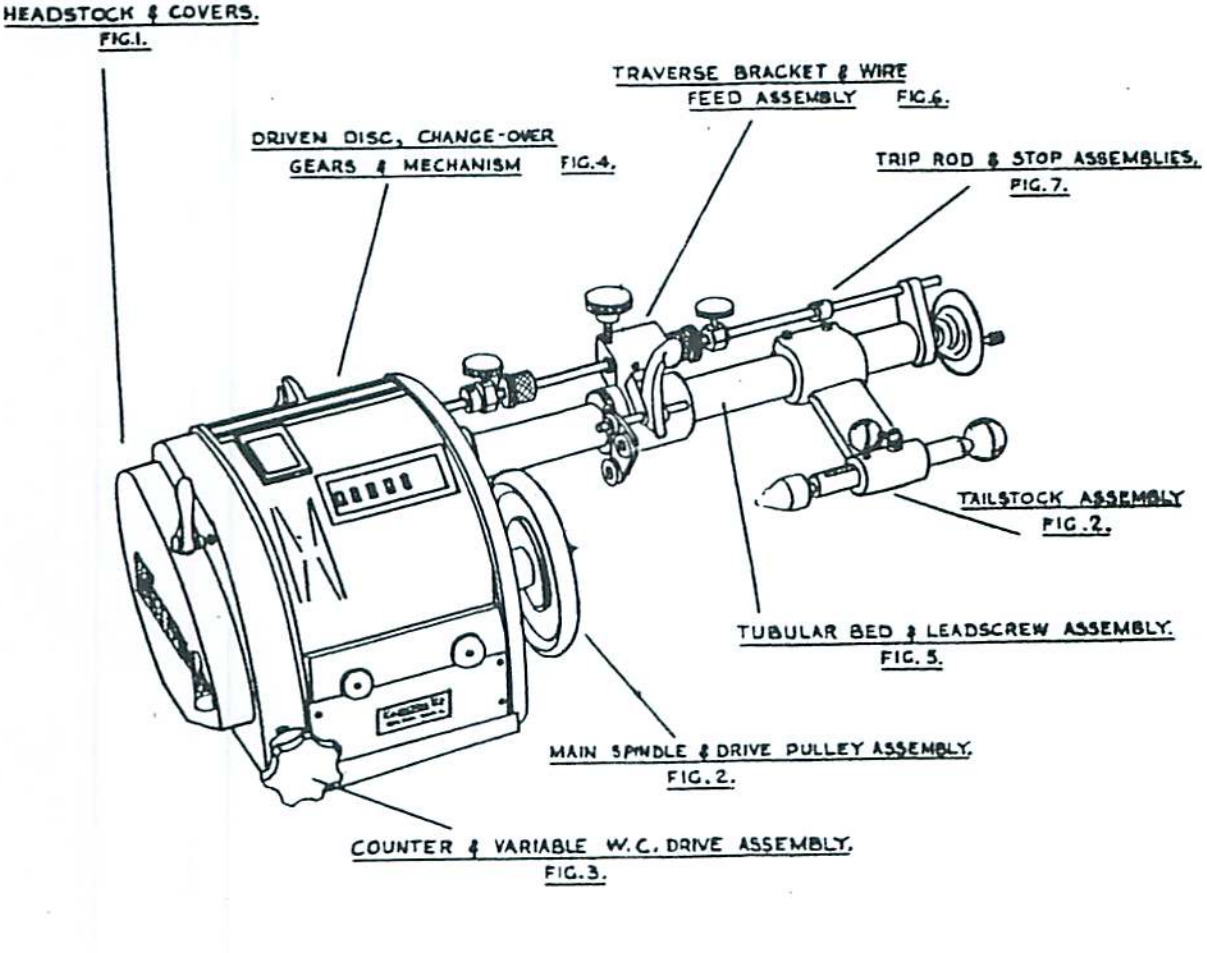


TRIP ROD & STOP ASSEMBLY.

FIGURE No. 7.

KOLECTRIC LIMITED

DEAN INTERNATIONAL HOUSE, THAMES INDUSTRIAL ESTATE,
MARLOW, BUCKS., SL7 1TB. TEL.06284 77266.



Coil Winding Machine Manual

WITH SPECIAL AL ADDITIONS

(REF. A - U)